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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,357	05/16/2001	Hidetoshi Yano	04476.00003	8163
22907	7590	08/09/2004	EXAMINER	
BANNER & WITCOFF 1001 G STREET N W SUITE 1100 WASHINGTON, DC 20001			LEURIG, SHARLENE L	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b></p> <p>09/787,357</p>	<p><b>Applicant(s)</b></p> <p>YANO, HIDETOSHI</p>	
	<p><b>Examiner</b></p> <p>Sharlene Leurig</p>	<p><b>Art Unit</b></p> <p>2879</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-13, 25 and 26 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10, 14 and 16-24 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on September 15, 2003 has been entered and acknowledged by the examiner.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 6-10, 14 and 20-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4 and 6-10, line 6 of claim 4 recites "an inner electrode connected to an end of said first feeding lead wire extended into said glass tube". It is unclear whether the inner electrode or the first feeding lead wire is extended into the glass tube.

Regarding claim 14, line 7 recites "an engaging member at least partially buried in the other end of the tube". It is not clear which end the other end is since no end of the glass tube was previously specified. Claims 20-23 also recite "the other end of the tube" and are therefore also indefinite.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 2 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hiromitsu (JP 07-272694 A) (of record) in view of Nakaya et al. (5,929,564) (of record).

Hiromitsu discloses a fluorescent lamp comprising a glass tube (Figure 1, element 1), both ends of which are sealed airtight (Abstract Constitution lines 3-4). There is a fluorescent layer on the inner wall of the tube (Figure 1, element 100), an inner electrode arranged at a single end of the tube, where it is connected to the tube, (Figure 1, element 5), and an outer electrode (Figure 1, element 4) encloses the glass tube between both ends along the tube's axis as a "wire netting" (Abstract Constitution line 5). The two electrodes are supplied with potential by an alternating power source (Figure 1, element 21), resulting in the outer electrode and the inner electrode being supplied with different potentials and thereby producing discharge within the tube.

Regarding claim 2, the tube is filled with xenon (Abstract Constitution line 13).

While Hiromitsu discloses all the limitations discussed above, he lacks an outer electrode spirally wound along the tube. However, Nakaya interprets the Hiromitsu reference as having "an external electrode . . . formed by winding a metal wire . . . around the tubular glass bulb" (column 1, line 22) and teaches that the external

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electrode of his invention "may be formed by winding a metal wire spirally around the tubular glass bulb as in the prior art described above [Hiromitsu]" (column 2, line 58).

Therefore Nakaya shows that spiral winding is an equivalent structure known in the art.

Therefore, because these two external electrode configurations were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute spirally wound external electrode for a metal mesh external electrode.

6. Claim 3 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Hiromitsu (JP 07-272694 A) (of record) in view of Nakaya et al. (5,929,564) (of record) as applied to claims 1 and 2 above, and further in view of Gellert (JP 05-174792).

Hiromitsu and Nakaya disclose all the limitations discussed above, but lack a means of securing the external electrode to the discharge tube. However, Nakaya recognizes the need for efficiency in a fluorescent lamp with a stationary external electrode (paragraph 0034 line 9).

Gellert teaches the use of a translucent resin (paragraph 0027, line 5) formed over external electrodes of a discharge tube in order to protect the external electrodes (paragraph 0007, line 2) to ensure a long lifetime (paragraph 0005, line 6).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hiromitsu's lamp with a spirally wound outer electrode, as Nakaya has taught it to be an equivalent structure, and to further modify it with a resin layer coating the external electrode in order to ensure a long lifetime.

7. Claims 14 and 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson et al. (4,179,640) (of record) in view of Hiromitsu (JP 07-272694 A) (of record).

Regarding claim 14, Larson discloses a lamp comprising an elongated sealed tube (12) containing a gas discharge medium, an inner electrode (14) disposed along a portion of the tube and exposed to the discharge medium, an outer electrode (40) disposed partially around the tube, and an engaging member (32) at least partially buried in an end of the tube and coupled to the outer electrode. Frame (32) is simply an extension of second feeding lead wire (20), and therefore the outer electrode (40) is both mechanically and electrically attached to the second feeding lead wire, which is partially buried in an end of the tube. The lamp is configured such that a voltage applied across the inner and outer electrodes causes a current to pass between the inner and outer electrodes, thereby causing the lamp to luminesce.

Larson fails to exemplify a fluorescent layer formed on the inside of the tube.

Hiromitsu teaches a lamp having an inner electrode and an outer electrode and further having a fluorescent layer formed on the inside of the discharge tube.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the lamp of Larson to have a fluorescent layer formed on the inner surface of the tube in order to provide the desired luminance, so that when a voltage is applied across the inner and outer electrodes, it causes a current to pass

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between the inner and outer electrodes, which thereby causes the fluorescent layer to fluoresce.

Regarding claim 16, the engaging member is conductive and is electrically coupled to the outer electrode, and current does not flow between the inner electrode (14) and the engaging member during lamp operation.

Regarding claim 17, the discharge medium is mainly xenon gas (Abstract).

Regarding claim 18, the outer electrode is spirally wound.

Regarding claim 19, the inner electrode within the tube is substantially shorter than a length of the tube.

Regarding claim 20, the engaging member buried in the tube has a portion that includes a rough surface, since any surface is not perfectly smooth and can therefore be considered rough.

Regarding claim 21, the engaging member buried in the tube has a portion that is flat (32).

Regarding claim 22, the engaging member buried in the tube has a portion (36) that is bent.

Regarding claim 23, the engaging member buried in the tube has a portion (36) that is concave-convex, since it is wrapped around the frame.

Regarding claim 24, the length along which the outer electrode (40) extends along the tube is greater than the length that the inner electrode (14) extends into the tube.

***Allowable Subject Matter***

8. Claim 4 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
9. Claims 6-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
10. Claims 11-13, 25 and 26 are allowed.
11. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 4 and 6-10, claim 4 has been amended by the applicant to contain previously indicated allowable subject matter, specifically the tube with the structure of claim 4 having a second feeding lead wire buried in a sealing portion of the glass tube but not exposed to the inside of the glass tube.

Regarding claims 11-13, claim 11 has been amended by the applicant to contain previously indicated allowable subject matter, specifically the tube with the structure of claim 11 having a second feeding lead wire buried in a sealing portion of the glass tube but not exposed to the discharge medium.



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Regarding claim 15, the prior art of record fails to teach or suggest a lamp having the structure of claim 14, including an engaging member coupled to the outer electrode and at least partially buried in the tube, wherein the engaging member further is not exposed to the discharge medium.

Regarding claims 25 and 26, Odagaki (JP 10-112290) discloses a discharge lamp having an internal electrode extending only partially through an inside of the discharge tube, and an outer electrode wound at least partially around the tube. Odagaki fails to disclose the outer electrode being wound at a varying winding pitch. Yokogawa (JP 10-284008) discloses a lamp having an outer electrode wound at a varying winding pitch across the length of the tube, but fails to disclose an internal electrode. There is no motivation to combine the Odagaki and Yokogawa references to obtain a lamp having an internal electrode and an external electrode which is wound at a varying pitch depending upon a distance between the outer electrode and the inner electrode, as the Yokogawa reference discloses a lamp whose varying winding pitch achieves optimal luminous intensity without an internal electrode.

Therefore the references of the prior art fail to teach or suggest the combination of limitations as set forth in claim 25, and specifically comprising the limitation of a lamp having an internal electrode and an external electrode wound around the discharge tube at a varying winding pitch depending on the distance between the internal and external electrodes.

### ***Response to Arguments***

13. Applicant's arguments filed September 15, 2003 have been fully considered but they are not persuasive. Regarding claims 1-3, the applicant has argued that neither the Hiromitsu reference nor the Nakaya reference teach or suggest an inner electrode arranged at a single end of a glass tube. The examiner disagrees, and directs the applicant to Figure 1 of the Hiromitsu reference, which clearly illustrates an electrode (5) being arranged at a single end of the glass tube, since the electrode does not extend all the way along the tube to the opposite end from where it enters the tube. Therefore the standing rejection of claim 1 is maintained.

### ***Conclusion***

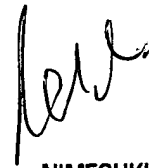
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (571) 272-2455. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sll



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